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The California State Water Project in 1977

Appendix D
Costs of Recreation and Fish and Wildlife Enhancement

Bulletin
No. 132-77
April 1977

COVER PHOTO:

Recreation at O'Neill Forebay — San Luis Reservoir of the State Water Project.

Department of
Water Resources

Bulletin No. 132-77

The California State Water Project in 1977

Appendix D
Costs of Recreation and Fish and Wildlife Enhancement

April 1977

Claire T. Dedrick
Secretary for Resources

The Resources
Agency

Edmund G. Brown Jr.
Governor

State of
California

Ronald B. Robie
Director

Department of
Water Resources

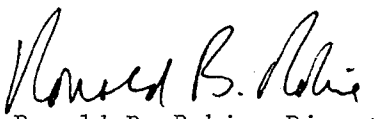
STATE WATER PROJECT FACILITIES

FOREWORD

The Davis-Dolwig Act (Sections 11900-11925 of the California Water Code) declares that recreation and fish and wildlife enhancement costs of State water projects benefit all of the people of California and are to be borne by them. The Act also provides a procedure through which the Department of Water Resources will be reimbursed for those recreation and fish and wildlife enhancement expenditures that are financed by project funds. The Department is to annually report such expenditures to the Legislature. If the Legislature approves the reported costs, a like amount of the State's tideland gas and oil revenues will be released to the Department from a continuing $5,000,000 annual appropriation of tideland revenues which has been authorized specifically for that purpose (Public Resources Code Section 6217).

This constitutes the Department's 1977 report to the Legislature in compliance with the above requirement. An additional $109,743 for recreation and fish and wildlife enhancement is reported herein. This amount consists of $403,976 for specific land for recreation, less $294,233 for joint costs of the State Water Project. The additional amount is mostly due to costs incurred in 1976 and interest accrued during 1976 on recreation costs not yet reimbursed by the continuing annual appropriation. The Department requests that the additional amount be approved.

Included in this report is the revised derivation of allocation percentages for the California Aqueduct from the Sacramento-San Joaquin Delta to the Dos Amigos Pumping Plant.



Ronald B. Robie, Director
Department of Water Resources
The Resources Agency
State of California

TABLE OF CONTENTS

Page

Location of Facilities..... 2
Foreword..... 3
Organization, Department of Water Resources..... 4

Reporting of Recreation and Fish and Wildlife Enhancement Costs.... 5
Organization of Report..... 5
Notes to Table 1..... 8
Summary of Allocation Percentages...14
Revised Derivation of Allocation Percentages for California Aqueduct, Delta to Dos Amigos Pumping Plant.....15
Previous Derivation of Allocation Percentages.....15
Special Requirements re the Allocation Method.....18
Current Derivation of Allocation Percentages.....19
Benefits.....21
Water Supply Benefits.....21
Recreation and Fish and Wildlife Enhancement Benefits.....23
Total Project Costs.....26
Alternative Costs.....28
Water Supply Alternative Costs.....28
Recreation and Fish and Wildlife Enhancement Alternative Costs.....29
Separable Costs.....29
Water Supply Separable Costs.....30
Recreation and Fish and Wildlife Enhancement Separable Costs.....30
Footnotes.....31
Comments by the Department of Navigation and Ocean Development, the Department of Parks and Recreation, and the Department of Fish and Game.....33

Page

Table 1. Recreation and Enhancement Costs of the State Water Project..... 6

Table 2. Calculation of Interest Accruals on California Water Resources Development Bond Fund Disbursements.....12

* * *

Table I. Revised Derivation of Allocation Percentages - California Aqueduct Delta to Dos Amigos Pumping Plant.....16

Table II. Total Water Supply Benefits from Facilities of the State Water Project.....21

Table III. Total Recreation and Fish and Wildlife Enhancement Use and Benefits.....24

Table IV. Total Recreation and Fish and Wildlife Enhancement Specific Costs.....25

Table V. Total Project Costs.....27

Table VI. Water Supply Alternative Costs.....28

Table VII. Recreation Alternative Costs.....29

Table VIII. Water Supply Separable Costs.....30

Table IX. Recreation and Fish and Wildlife Separable Costs.....31

State of California
EDMUND G. BROWN JR., Governor

The Resources Agency
CLAIRE T. DEDRICK, Secretary for Resources

Department of Water Resources
RONALD B. ROBIE, Director

ROBIN R. REYNOLDS, Deputy Director
GERALD H. MERAL, Deputy Director
ROBERT W. JAMES, Deputy Director

CHARLES R. SHOEMAKER
Assistant Director

PROGRAM CONTROL AND POLICY OFFICE
Donald E. Owen, Chief

This report was prepared under the direction of
L. E. Swenson, Chief, Water Project Analysis Branch

by
David L. Hitzeman, Chief Project Formulation Section
Jesse J. Cason, Associate Engineer
Margaret A. Hutchinson, Delineator
Frances Mercer, Senior Stenographer

and on the basis of records compiled under the direction of

Thomas H. T. Morrow, Chief - Division of Land and Right of Way
Peter D. Mysing, Comptroller
Chester M. Winn, Chief - Contractor Accounting Office

REPORTING OF RECREATION AND FISH AND WILDLIFE ENHANCEMENT COSTS

Section 11912 of the California Water Code assigns to the Department of Water Resources the following responsibilities:

> *It shall be the duty of the Department to report annually to the Legislature the costs, if any, which the department has allocated to recreation and fish and wildlife enhancement for each facility of any state water project. The department shall also report to the Legislature any revisions which the Department makes in such allocations.*
>
> *The department shall submit each such cost allocation to the Department of Navigation and Ocean Development, to the Department of Parks and Recreation, and to the Department of Fish and Game. The Department of Navigation and Ocean Development, the Department of Parks and Recreation, and the Department of Fish and Game shall file with the Department of Water Resources their written comments with respect to each such cost allocation, which written comments shall be included in the report required by this section.*
>
> *It shall also be the duty of the department to report to the Legislature on any expenditure of funds for acquiring rights-of-way, easements and property pursuant to Section 346 for recreation development associated with such facilities....*

This appendix constitutes the Department's 1977 report as required by Section 11912.

For brevity, "fish and wildlife enhancement" is hereafter referred to as "enhancement". The Department's cost allocations treat recreation and enhancement as one combined purpose of the State Water Project.

Organization of Report

The costs of State Water Project facilities which the Department has allocated to recreation and enhancement through December 31, 1976, are shown in Table 1, pages 6 and 7, together with expenditures for acquiring rights of way, easements, and property for recreation development associated with such facilities. Table 2, on pages 12 and 13, details the accrued interest charges that are included in the costs shown in Table 1.

The notes to Table 1, on pages 8 through 11, contain an explanation of the Department's procedures for reporting recreation and enhancement costs, a description of how the amounts shown in the Table are calculated, and a reconciliation of significant changes from costs shown in previous reports.

A revised derivation of allocation percentages for the California Aqueduct, Delta to Dos Amigos Pumping Plant is included in this report. The derivation of allocation percentages indicated for joint capital costs of those multipurpose facilities listed in the upper portion of Table 1 (except Delta to Dos Amigos Pumping Plant, which is reported herein) have been described in previous reports. Copies of those descriptions are available on request to the Department.

A summary of allocation percentages is shown on page 14, including illustrative allocation percentages for facilities which have not been reported.

Included at the end of this report, are comments by the Department of Navigation and Ocean Development, the Department of Parks and Recreation and the Department of Fish and Game.

(Reported to the California Legislature in

(in

TYPE OF COSTS, PROJECT FACILITY, AND SOURCE OF FUNDS	DISBURSEMENTS, 1952-1963	1964	1965	1966	1967	1968	1969	1970
JOINT CAPITAL COSTS ALLOCATED TO RECREATION AND ENHANCEMENT:(b								
Frenchman Dam and Lake (78.5%)								
California Water Resources Development Bond Fund	-132	4,639	4,451	16,918	65,092	2,209	48	1,339
All other funds	2,429,056	-218	-5	6		515	1,197	264
Subtotal	2,428,924	4,421	4,446	16,924	65,092	2,724	1,245	1,603
Antelope Dam and Lake (100.0%)								
California Water Resources Development Bond Fund	25,021	490,306	259,598	36,676	151,356	18,420	9,837	19,239
All other funds	3,682,672	18,831	145	12	2	21,504	207,418	5,010
Subtotal	3,707,693	509,137	259,743	36,688	151,358	39,924	217,255	24,249
Grizzly Valley Dam and Lake Davis (94.9%)								
California Water Resources Development Bond Fund	20,100	484,442	930,749	1,700,233	488,205	173,312	23,502	5,978
All other funds	221,001	-3,394	3,968	35,862	12,395	13,025	157,206	62,218
Subtotal	241,101	481,048	934,717	1,736,095	500,600	186,337	180,708	68,196
California Aqueduct, Delta to Dos Amigos P.P. (3.4%)								
California Water Resources Development Bond Fund	216,538	932,606	1,534,421	1,927,861	1,479,784	261,814	75,035	87,700
All other funds	1,262,309	280,290	-13,696	54,874	24,701	241,128	206,413	47,669
Subtotal	1,478,847	1,212,896	1,520,725	1,982,735	1,504,485	502,942	281,448	135,369
Oroville Division (2.9%)								
California Water Resources Development Bond Fund	29,368	1,151,063	962,834	2,247,395	1,335,209	86,993	26,247	7,605
All other funds	2,776,610	-6,214	36,109	18,608	37,774	321,811	87,540	17,785
Subtotal	2,805,978	1,144,849	998,943	2,266,003	1,372,983	408,804	113,787	25,390
Del Valle Dam and Lake Del Valle (48.0%)								
California Water Resources Development Bond Fund	24,343	402,502	738,461	2,923,153	5,529,695	839,484	3,907	20,726
All other funds	596,574	-2,542	130	2,760	387,848	1,026,256	84,945	45,220
Subtotal	620,917	399,960	738,591	2,925,913	5,917,543	1,865,740	88,852	65,946
TOTAL	11,283,460	3,752,311	4,457,165	8,964,358	9,512,061	3,006,471	883,295	320,753
SPECIFIC COSTS OF ACQUIRING LAND FOR RECREATION DEVELOPMENT:(c								
Frenchman Dam and Lake								
California Water Resources Development Bond Fund	-464	696	642	1,504	521	162	28	182
All other funds	49,642	1				223	74	
Subtotal	49,178	697	642	1,504	521	385	102	182
Grizzly Valley Dam and Lake Davis								
California Water Resources Development Bond Fund	519	27,998	4,147	19,086	164,798	-13,724	324	625
All other funds	5,243	3						
Subtotal	5,762	28,001	4,147	19,086	164,798	-13,724	324	625
Oroville Division								
California Water Resources Development Bond Fund	19,044	232,053	551,385	1,038,217	34,027	-1,484	-6,886	4,160
All other funds	266,367	-24,059	-4,549	-3,928	-34,911	80,622	34,685	4,927
Subtotal	285,411	207,994	546,836	1,034,289	-884	79,138	27,799	9,087
Del Valle Dam and Lake Del Valle								
California Water Resources Development Bond Fund	791	24,212	70,463	8,581	489,259	-147,869	-1,490	1,629
All other funds	30,787	94	-852			227	960	190
Subtotal	31,578	24,306	69,611	8,581	489,259	-147,642	-530	1,819
San Luis Dam and Reservoir, O'Neill Forebay and Los Banos Reservoir								
California Water Resources Development Bond Fund	-13,825	-20,425	82,710	171,317	5,875	1,950	1,047	47,115
All other funds	163,619	-3,924	-4,378	38,719	-1,068	2,683	1,132	-272
Subtotal	149,794	-24,349	78,332	210,036	4,807	4,633	2,179	46,843
California Aqueduct								
California Water Resources Development Bond Fund	-26,082	19,483	580,372	13,287	224,898	71,036	67,887	475,171
All other funds	109,219	-1,271	-614	-71	-80	9,021	17,508	2,981
Subtotal	83,137	18,212	579,758	13,216	224,818	80,057	85,395	478,152
Castaic Dam and Lake								
California Water Resources Development Bond Fund	603	29,708	398,203	492,805	915,109	-18,073	-44,600	22,812
All other funds	9,679	831			-75	44,752	7,038	1,028
Subtotal	10,282	30,539	398,203	492,805	915,034	26,679	-37,562	23,840
Cedar Springs Dam and Silverwood Lake								
California Water Resources Development Bond Fund	90,854		18,469	88,949	64,091	43,779	32,470	36,168
All other funds	45,013					-211,152	322,523	27,054
Subtotal	135,867		18,469	88,949	64,091	-167,373	354,993	63,222
Perris Dam and Lake Perris								
California Water Resources Development Bond Fund	405,713	-27,827	-25,390	-13,884	20,994	492,881	-1,943	4,195
All other funds	234,997					3,721,737	-333,922	
Subtotal	640,710	-27,827	-25,390	-13,884	20,994	4,214,618	-335,865	4,195
Abbey Bridge Dam and Reservoir								
California Water Resources Development Bond Fund			9					
All other funds	9,916	5						
Subtotal	9,916	5	9					
TOTAL	1,401,635	257,578	1,670,617	1,854,582	1,883,438	4,076,771	96,835	627,965
TOTAL RECREATION AND ENHANCEMENT COSTS								
California Water Resources Development Bond Fund	792,391	3,751,456	6,111,524	10,672,098	10,968,913	1,810,890	185,413	734,644
All other funds	11,892,704	258,433	16,258	146,842	426,586	5,272,352	794,717	214,074
GRAND TOTAL	12,685,095	4,009,889	6,127,782	10,818,940	11,395,499	7,083,242	980,130	948,718

Footnotes a-g are presented on pages 8 through 11.

COSTS OF THE STATE WATER PROJECT
Response to Water Code Section 11912)
dollars)

BY CALENDAR YEAR						TOTAL DISBURSEMENTS THRU 1976	Add: INTEREST ACCRUALS THRU 1976	TOTAL COSTS REPORTED THRU 1976	COMPARISON WITH COSTS PREVIOUSLY REPORTED	
1971	1972	1973	1974	1975	1976				THRU 1975	INCREASE
7,207	1,236					103,007	1,805	104,812	104,785	27
234	1,603	976	1,268	481	1,112	2,436,489		2,436,489	2,435,150	1,339
7,441	2,839	976	1,268	481	1,112	2,539,496	1,805	2,541,301	2,539,935	1,366
24,365	1,605					1,036,423	98,378	1,134,801	1,134,681	120
3,043	2,097	1,423	1,950	740	2,116	3,946,963		3,946,963	3,944,414	2,549
27,408	3,702	1,423	1,950	740	2,116	4,983,386	98,378	5,081,764	5,079,095	2,669
9,624	1,662					3,837,807	400,583	4,238,390	4,238,055	335
753	2,619	24,158	45,689	84,784	21,445	681,729		681,729	653,715	28,014
10,377	4,281	24,158	45,689	84,784	21,445	4,519,536	400,583	4,920,119	4,891,770	28,349
21,496	23,182	-308	-388	-262	-205	6,559,274	861,078	7,420,352	7,585,577	-165,225
4,634	12,466	17,542	25,436	33,804	45,265	2,242,835		2,242,835	2,227,001	15,834
26,130	35,648	17,234	25,048	33,542	45,060	8,802,109	861,078	9,663,187	9,812,578	-149,391
7,718	4,652	-37	-42	-18	-15	5,858,972	1,698,554	7,557,526	7,589,889	-32,363
5,200	10,758	23,480	26,450	28,993	29,145	3,414,049		3,414,049	3,386,633	27,416
12,918	15,410	23,443	26,408	28,975	29,130	9,273,021	1,698,554	10,971,575	10,976,522	-4,947
23,887	40,249					10,546,407	4,055,616	14,602,023	14,754,809	-152,786
2,741	6,686	9,715	116,009	8,047	12,619	2,297,008		2,297,008	2,316,501	-19,493
26,628	46,935	9,715	116,009	8,047	12,619	12,843,415	4,055,616	16,899,031	17,071,310	-172,279
110,902	108,815	76,949	216,372	156,569	111,482	42,960,963	7,116,014	50,076,977	50,371,210	-294,233
108						3,379	134	3,513	3,513	
7						49,947		49,947	49,947	
115						53,326	134	53,460	53,460	
343						204,116	15,096	219,212	219,198	14
						5,246		5,246	5,246	
343						209,362	15,096	224,458	224,444	14
10,135	-509	-74	-87	-53	-22	1,879,906	625,751	2,505,657	2,488,156	17,501
4,437	3,347	1,452	1,204	-1,752	1,382	329,224		329,224	327,427	1,797
14,572	2,838	1,378	1,117	-1,805	1,360	2,209,130	625,751	2,834,881	2,815,583	19,298
600	39					446,215	234,002	680,217	689,117	-8,900
159	758	2,017	820	403	43	35,606		35,606	-15,702	51,308
759	797	2,017	820	403	43	481,821	234,002	715,823	673,415	42,408
1,965	116,804					394,533	155,183	549,716	479,667	70,049
470	-42,650	19,103	118	508	432	174,492		174,492	176,041	-1,549
2,435	74,154	19,103	118	508	432	569,025	155,183	724,208	655,708	68,500
-9,714	-160,306	-8,966				1,247,066	646,205	1,893,271	1,794,985	98,286
4,077	145,743	44,911	17,976	63,866	852	414,118		414,118	416,235	-2,117
-5,637	-14,563	35,945	17,976	63,866	852	1,661,184	646,205	2,307,389	2,211,220	96,169
17,483	32,058	-233	-232	-108		1,845,535	1,009,105	2,854,640	2,734,368	120,272
7,810	23,411	17,485	1,128	72,387	9,252	194,726		194,726	98,376	96,350
25,293	55,469	17,252	896	72,279	9,252	2,040,261	1,009,105	3,049,366	2,832,744	216,622
19,633	24,038					418,451	219,649	638,100	593,554	44,546
-12,302	24,328	12,236	28,345	9,799	4,759	250,603		250,603	375,404	-124,801
7,331	48,366	12,236	28,345	9,799	4,759	669,054	219,649	888,703	968,958	-80,255
2,600	-1,300					856,039	500,890	1,356,929	1,299,655	57,274
		130	-1,300			3,621,642		3,621,642	3,637,696	-16,054
2,600	-1,300	130	-1,300			4,477,681	500,890	4,978,571	4,937,351	41,220
						9		9	9	
						9,921		9,921	9,921	
						9,930		9,930	9,930	
47,811	165,761	88,061	47,972	145,050	16,698	12,380,774	3,406,015	15,786,789	15,382,813	403,976
137,450	83,410	-9,618	-749	-441	-242	35,237,139	10,522,029	45,759,168	45,710,018	49,150
21,263	191,166	174,628	265,093	302,060	128,422	20,104,598		20,104,598	20,044,005	60,593
158,713	274,576	165,010	264,344	301,619	128,180	55,341,737	10,522,029(d	65,863,766(e	65,754,023(f	109,743(g

a) Recreation and enhancement costs herein refer only to those capital costs of multipurpose facilities of the State Water Project that are allocated to recreation and enhancement and/or of lands that are acquired for associated recreation development. These costs are budgeted by the Department of Water Resources from funds that are available to the Department for financing construction costs of the Project.

The remaining recreation and enhancement costs of types not reported herein are budgeted by several state departments and are financed by appropriations from a variety of funds. These costs and appropriations are summarized below:

Type of Recreation and Enhancement Costs Not Reported in Table 1	General Fund Appropriations, unless otherwise noted		
	1977-78[a]	1976-77[b]	Total 1962-63 thru 1977-78[c]
Allocated operation, maintenance, and replacement costs of multipurpose facilities	$1,795,000	$1,780,000	$10,552,000
Capital costs of recreation developments other than for land acquisition	$3,393,000[d]	$8,566,000[d]	$83,856,000[e]
Operation, maintenance, and replacement costs of recreation developments	$4,278,000	$3,363,000	$16,986,000

a) Proposed amounts in Governor's budget.
b) 1976-77 budgeted amount.
c) Actual thru 1975-76 plus a) and b).
d) Total amounts are from the Recreation and Fish and Wildlife Enhancement Fund.
e) Includes $1,236,000 from the Harbors and Watercraft Revolving Fund, $200,000 directly from the Highway Users Tax Fund, and $65,317,000 from the Recreation and Fish and Wildlife Enhancement Fund.

Allocated operation, maintenance, and replacement costs of multipurpose facilities are budgeted by the Department of Water Resources and have been financed by annual appropriations from the General Fund. Capital costs (other than land acquisition costs) and operation, maintenance, and replacement costs of recreation developments are budgeted by the Department of Parks and Recreation -- except that the costs of boating facilities are budgeted by the Department of Navigation and Ocean Development. Costs of enhancement developments are budgeted by the Department of Fish and Game.

b) Joint capital costs allocated to recreation and enhancement are based on the Department's derivation, for each multipurpose facility of the percentages of the total joint costs that are attributable to each included purpose. These derivations are based on the application of conventional cost allocation methods which weight the estimated costs to be incurred and benefits to be realized during a 50-year period of analysis. Allocated costs reflect the application of these percentages to the actual capital costs incurred for the facility as accounted by the Department.

Costs allocated to recreation and enhancement generally are first reported in the year following the year construction of a facility is complete. However, these allocated costs may be subsequently changed

due to either the adjustment of accounted capital costs or the revision of allocation percentages.

The allocation percentages of a facility may be revised if it can be formally demonstrated that such revision is warranted due to substantial changes in the supporting factors to the previous derivation. Such demonstration could include the finding that (1) funds are not forthcoming for financing the costs of planned recreation developments, with resultant decreases in projected recreation benefits and costs, (2) a change in cost allocation method would produce more equitable results or (3) actual visitor days of use had substantially increased or decreased from the previous projections resulting in a change in projected benefits.

The tentative schedule shown below indicates the times when allocated costs of each State Water Project facility will be first reported and when the factors which support the derivation of allocation percentages will be periodically reviewed for substantial changes. Revised allocation percentages for the California Aqueduct, Delta to Dos Amigos Pumping Plant are included in this report.

TENTATIVE SCHEDULE FOR REPORTING AND REVIEW
OF COST ALLOCATIONS

Project Facility	Year Allocation to be Initially Reported	Year Supporting Factors to be Reviewed For Substantial Changes										
		78	79	80	81	82	83	84	85	86	87	88[a]
Frenchman Lake	1965		x					x				
Antelope Lake	1966		x					x				
Lake Davis	1968		x					x				
Abbey Bridge Reservoir	[b]											
Dixie Refuge Reservoir	[b]											
Oroville Division[d]	1971	x					x					x
Delta Facilities	1982[c]										x	
North Bay Aqueduct	1980								x			
South Bay Aqueduct (Lake Del Valle)	1973		x					x				
California Aqueduct, Project Conservation Facilities:[d]	1970											
Bethany Reservoir						x					x	
San Luis Reservoir						x					x	
O'Neill Forebay						x					x	
Los Banos Reservoir						x					x	
Aqueduct Developments						x					x	
California Aqueduct, Project Transportation Facilities:	1978											
Pyramid Lake							x					x
Castaic Lake							x					x
Silverwood Lake							x					x
Lake Perris							x					x
Aqueduct Developments							x					x

a) Reviews would continue in the pattern indicated.
b) Delayed indefinitely.
c) Construction schedule tentative and subject to revision.
d) Will include an evaluation of an allocation of conservation facility costs to recreation and other purposes in Sacramento-San Joaquin Delta.

c) Specific costs of acquiring land for recreation developments are incurred by the Department under the authority of California Water Code Section 346. The Department purchases recreation lands concurrently with lands needed for multipurpose facilities in order to decrease the total land costs of the Project and to acquire property in an orderly manner. Recreation lands acquired for each project facility through December 31, 1976, are summarized below.

SUMMARY OF RECREATION LAND ACQUISITIONS[a]
(in acres)

(metric conversion: acres x 0.40469 = hectares)

Project Facility	Acquired [b]	To be Acquired	Federal Lands[c]	Total
Frenchman Lake	719	0	0	719
Antelope Lake	1,342	0	0	1,342
Lake Davis	733	0	0	733
Oroville Division	2,576	0	212	2,788
Lake Del Valle	1,206	0	0	1,206
San Luis Reservoir and O'Neill Forebay	2,518	0	0	2,518
California Aqueduct (excluding reservoirs)	1,664	[d]	0	1,664
Castaic Lake	1,915	0	577	2,492
Silverwood Lake	304	0	2,919	3,223
Lake Perris	4,343[e]	123	0	4,466

a) Includes recreation lands for only those project facilities with an established recreation land use and acquisition plan.
b) Costs of acquiring these lands are shown in Table 1.
c) These lands are presently being leased from the Federal Government at a nominal cost to the State.
d) Additional land needs are to be identified by future studies.
e) Lands acquired reduced to usable acreage.

The Department reports the annual expenditure of project funds for acquiring all recreation land in the year following the expenditure. The costs of such lands generally are established when acquired and are not affected by allocation percentages for the associated multipurpose project facility. However, the reported costs of certain lands may be subsequently revised due to receipt of certain revenues (such as federal grants and miscellaneous income from right-of-way sales) or due to modification of the recreation land use plan.

The amounts to be reported in future years will include credits for any reduction in previously reported costs, together with appropriate interest income thereon. If recreation land is sold or if grants are received, the amount of the receipt will be reported as a negative cost of the facility the year received. If recreation land is reclassified as multipurpose project land, the original purchase price, together with appropriate interest income thereon, will be reported as a negative expenditure for specific land costs and an appropriate amount will be added to the joint capital costs allocated to recreation and enhancement for the associated facility.

The costs of acquiring recreation land include the salaries of department personnel who are engaged in recreation land acquisition activities, together with indirect costs that are distributed on the basis of direct salaries.

d) Interest accruals are calculated as shown in Table 2. Interest charges are accrued only on the portion of annual disbursements financed by the California Water Resources Development Bond Fund (proceeds from the sale of Burns-Porter Bonds) and cease when such disbursements, together with cumulative interest accruals thereon, have been reimbursed. Calculations are based on the weighted average interest costs of Burns-Porter Bonds sold to date (4.377 percent for the $1,560,000,000 in bonds outstanding as of December 31, 1976). This rate differs from the "project interest rate" under the Project's water supply contracts in that interest costs on revenue bond sales are not included.

As of December 31, 1976, a total of $55,000,000 had been reimbursed to the Department under the continuing annual $5,000,000 appropriation (thru fiscal year 1976-77) of State tideland oil and gas revenues, authorized by California Statutes of 1966, First Extraordinary Session, Chapter 27. With no allowance for future interest, reimbursement of the increased amount of costs reported herein would cover annual appropriations in the full amounts for 1977-78 and 1978-79, together with $863,766 of the appropriation for 1979-80.

The amounts reported to date do not yet include an allocation to recreation and fish and wildlife enhancement in the Sacramento-San Joaquin Delta. (The tentative schedule on page 9 shows 1982 as the year in which such an allocation will be initially reported for Delta Facilities and the year 1978 when this will be reflected in a revised Oroville allocation.)

e) The Department requests that this total increased amount of reported costs be approved by the Legislature.

f) Costs previously reported are as shown in Table 1 (pages 4 and 5) of Appendix D to Bulletin 132-76. Such costs were approved by California Statutes of 1976, Chapter 559, and were based on the Department's accounting records as of December 31, 1975. The average interest cost on Burns-Porter Bond sales was then 4.374 percent.

g) Reasons for cost increase are outlined below:

- Additional disbursements during 1976 for recreation lands for joint capital costs allocated to recreation and enhancement.....$ 128,000
- Additional accrued interest on recreation not yet reimbursed by the continuing $5,000,000 annual appropriation due to an additional year of accrual (1976)....$ 261,000
- Adjustment in costs of Del Valle Dam and Lake, Castaic Dam and Lake, Cedar Springs Dam and Silverwood Lake, and Perris Dam and Lake due to reallocation of open-space land grants.....$-102,000
- Adjustment in costs of San Luis Dam and Reservoir and O'Neill Forebay resulting from recalculation of State and Federal shares of specific recreation land costs. .$ -25,000
- Additional costs associated with California Aqueduct land parcels deeded to the Department of Fish and Game.....$ 17,000
- Adjustment in costs of the California Aqueduct from the Delta to Dos Amigos due to revising the cost allocation.....$-175,000
- Adjustment in costs of Grizzly Valley Dam and Lake Davis for 1975 due to late reporting of litigation costs.....$ 7,000
- Adjustment in costs of the Oroville Division for 1975 due to reallocation of litigation costs.....$ -2,000
- Net retroactive accounting adjustment on costs reported prior to 1976.....$ 1,000

TOTAL INCREASE.....$ 110,000

TABLE 2. CALCULATION OF INTEREST ACCRUALS ON CALIFORNIA

(in dollars

YEAR	ITEM	JOINT CAPITAL COSTS ALLOCATED TO RECREATION AND ENHANCEMENT						
		Frenchman Dam and Lake	Antelope Dam and Lake	Grizzly Valley Dam and Lake Davis	California Aqueduct Delta to Dos Amigos P. P.	Oroville Division	Del Valle Dam and Lake Del Valle	Total
1952-72	a. Disbursements							
	1. Calif. Water Resources Development Bond Fund	103,007	1,036,423	3,837,807	6,560,437	5,859,084	10,546,407	27,943,165
	2. All other funds	2,432,652	3,940,734	505,653	2,120,788	3,305,981	2,150,618	14,456,426
	b. Reimbursement 1967 thru 1971 applied to:							
	1. Calif. Water Resources Development Bond Fund	104,811	1,134,792	4,238,386	7,421,425	7,455,021		20,354,435
	2. All other funds	2,432,652	3,940,734	505,653	2,120,788	3,305,981		12,305,808
	c. Interest accrued to end of 1972	1,805	98,378	400,583	861,076	1,696,308	3,063,635	6,121,785
1973	d. Beginning-of-year balance to be reimbursed:							
	1. Calif. Water Resources Development Bond Fund	1	9	4	88	100,371	13,610,042	13,710,515
	2. All other funds						2,150,618	2,150,618
	e. Disbursements during year:							
	1. Calif. Water Resources Development Bond Fund				-308	-37		-345
	2. All other funds	976	1,423	24,158	17,542	23,480	9,715	77,294
	f. Reimbursements during year applied to:							
	1. Calif. Water Resources Development Bond Fund	1	9	4	-220	100,334	4,059,929	4,160,057
	2. All other funds	976	1,423	24,158	17,542	23,480		67,579
	g. End-of-year balance, without interest for:							
	1. Calif. Water Resources Development Bond Fund						9,550,113	9,550,113
	2. All other funds						2,160,333	2,160,333
	h. Interest accrual on average balance of d(1) & g(1)				2	2,197	506,860	509,059
1974	i. Beginning-of-year balance to be reimbursed:							
	1. Calif. Water Resources Development Bond Fund				2	2,197	10,056,973	10,059,172
	2. All other funds						2,160,333	2,160,333
	j. Disbursements during year:							
	1. Calif. Water Resources Development Bond Fund				-388	-42		-430
	2. All other funds	1,268	1,950	45,689	25,436	26,450	116,009	216,802
	k. Reimbursements during year applied to:							
	1. Calif. Water Resources Development Bond Fund				-386	2,155	4,886,603	4,888,372
	2. All other funds	1,268	1,950	45,689	25,436	26,450		100,793
	l. End-of-year balance, without interest for:							
	1. Calif. Water Resources Development Bond Fund						5,170,370	5,170,370
	2. All other funds						2,276,342	2,276,342
	m. Interest accrual on average balance of i(1) & l(1)					48	333,250	333,298
1975	n. Beginning-of-year balance to be reimbursed:							
	1. Calif. Water Resources Development Bond Fund					48	5,503,620	5,503,668
	2. All other funds						2,276,342	2,276,342
	o. Disbursements during year:							
	1. Calif. Water Resources Development Bond Fund				-262	-18		-280
	2. All other funds	481	740	84,784	33,804	28,993	8,047	156,849
	p. Reimbursements during year applied to:							
	1. Calif. Water Resources Development Bond Fund				-262	30	4,853,022	4,852,790
	2. All other funds	481	740	84,784	33,804	28,993		148,802
	q. End-of-year balance, without interest for:							
	1. Calif. Water Resources Development Bond Fund						650,598	650,598
	2. All other funds						2,284,389	2,284,389
	r. Interest accrual on average balance of n(1) & q(1)					1	134,685	134,686
1976	s. Beginning-of-year balance to be reimbursed:							
	1. Calif. Water Resources Development Bond Fund					1	785,283	785,284
	2. All other funds						2,284,389	2,284,389
	t. Disbursements during year:							
	1. Calif. Water Resources Development Bond Fund				-205	-15		-220
	2. All other funds	1,112	2,116	21,445	45,265	29,145	12,619	111,702
	u. Reimbursements during year applied to:							
	1. Calif. Water Resources Development Bond Fund				-205	-14	785,283	785,064
	2. All other funds	1,112	2,116	21,445	45,265	29,145	2,297,008	2,396,091
	v. End-of-year balance, without interest for:							
	1. Calif. Water Resources Development Bond Fund							
	2. All other funds							
	w. Interest accrual on average balance of s(1) & v(1)						17,186	17,186
SUMMARY: 1952 thru 1976	x. Beginning of 1977 balance to be reimbursed:							
	1. Calif. Water Resources Development Bond Fund						17,186	17,186
	2. All other funds							
	Total						17,186	17,186
	y. Disbursements, 1952 thru 1976							
	1. Calif. Water Resources Development Bond Fund	103,007	1,036,423	3,837,807	6,559,274	5,858,972	10,546,407	27,941,890
	2. All other funds	2,436,489	3,946,963	681,729	2,242,835	3,414,049	2,297,008	15,019,073
	Total	2,539,496	4,983,386	4,519,536	8,802,109	9,273,021	12,843,415	42,960,963
	z. Reimbursements applied thru 1976 to:							
	1. Calif. Water Resources Development Bond Fund	104,812	1,134,801	4,238,390	7,420,352	7,557,526	14,584,837	35,040,718
	2. All other funds	2,436,489	3,946,963	681,729	2,242,835	3,414,049	2,297,008	15,019,073
	Total	2,541,301	5,081,764	4,920,119	9,663,187	10,971,575	16,881,845	50,059,791
	TOTAL INTEREST ACCRUALS, 1952 THRU 1976	1,805	98,378	400,583	861,078	1,698,554	4,055,616	7,116,014

WATER RESOURCES DEVELOPMENT BOND FUND DISBURSEMENTS

@ 4.377% per annum)

COSTS OF ACQUIRING LAND FOR RECREATION DEVELOPMENT											GRAND TOTAL
Frenchman Dam and Lake	Grizzly Valley Dam and Lake Davis	Abbey Bridge Dam and Reservoir	Oroville Division	Del Valle Dam and Lake Del Valle	San Luis Dam and Reservoir & O'Neill Forebay	California Aqueduct	Castaic Dam and Lake	Cedar Springs Dam and Silverwood Lake	Perris Dam and Lake Perris	Total	
3,379	204,116	9	1,880,142	446,215	394,533	1,256,032	1,846,108	418,451	856,039	7,305,024	35,248,189
49,947	5,246	9,921	326,938	32,323	154,331	286,513	94,474	195,464	3,622,812	4,777,969	19,234,395
3,513	219,212	9	2,051,909							2,274,643	22,629,078
49,947	5,246	9,921								65,114	12,370,922
134	15,096		615,815	139,155	78,534	355,312	559,529	119,163	287,202	2,169,940	8,291,725
			444,048	585,370	473,067	1,611,344	2,405,637	537,614	1,143,241	7,200,321	20,910,836
			326,938	32,323	154,331	286,513	94,474	195,464	3,622,812	4,712,855	6,863,473
			-74			-8,966	-233			-9,273	-9,618
			1,452	2,017	19,103	44,911	17,485	12,236	130	97,334	174,628
			443,974							443,974	4,604,031
			328,390							328,390	395,969
				585,370	473,067	1,602,378	2,405,404	537,614	1,143,241	6,747,074	16,297,187
				34,340	173,434	331,424	111,959	207,700	3,622,942	4,481,799	6,642,132
			9,718	25,622	20,706	70,332	105,290	23,531	50,040	305,239	814,298
			9,718	610,992	493,773	1,672,710	2,510,694	561,145	1,193,281	7,052,313	17,111,485
				34,340	173,434	331,424	111,959	207,700	3,622,942	4,481,799	6,642,132
			-87				-232			-319	-749
			1,204	820	118	17,976	1,128	28,345	-1,300	48,291	265,093
			9,631							9,631	4,898,003
			1,204							1,204	101,997
				610,992	493,773	1,672,710	2,510,462	561,145	1,193,281	7,042,363	12,212,733
				35,160	173,552	349,400	113,087	236,045	3,621,642	4,528,886	6,805,228
			213	26,743	21,612	73,215	109,888	24,561	52,230	308,462	641,760
			213	637,735	515,385	1,745,925	2,620,350	585,706	1,245,511	7,350,825	12,854,493
				35,160	173,552	349,400	113,087	236,045	3,621,642	4,528,886	6,805,228
			-53				-108			-161	-441
			-1,752	403	508	63,866	72,387	9,799		145,211	302,060
			160							160	4,852,950
			-1,752							-1,752	147,050
				637,735	515,385	1,745,925	2,620,242	585,706	1,245,511	7,350,504	8,001,102
				35,563	174,060	413,266	185,474	245,844	3,621,642	4,675,849	6,960,238
			5	27,914	22,558	76,419	114,690	25,636	54,516	321,738	456,424
			5	665,649	537,943	1,822,344	2,734,932	611,342	1,300,027	7,672,242	8,457,526
				35,563	174,060	413,266	185,474	245,844	3,621,642	4,675,849	6,960,238
			-22							-22	-242
			1,382	43	432	852	9,252	4,759		16,720	128,422
			-17	665,649	537,943	403,790				1,607,365	2,392,429
			1,382	35,606	174,492					211,480	2,607,571
						1,418,554	2,734,932	611,342	1,300,027	6,064,855	6,064,855
						414,118	194,726	250,603	3,621,642	4,481,089	4,481,089
				14,568	11,773	70,927	119,708	26,758	56,902	300,636	317,822
				14,568	11,773	1,489,481	2,854,640	638,100	1,356,929	6,365,491	6,382,677
						414,118	194,726	250,603	3,621,642	4,481,089	4,481,089
				14,568	11,773	1,903,599	3,049,366	888,703	4,978,571	10,846,580	10,863,766
3,379	204,116	9	1,879,906	446,215	394,533	1,247,066	1,845,535	418,451	856,039	7,295,249	35,237,139
49,947	5,246	9,921	329,224	35,606	174,492	414,118	194,726	250,603	3,621,642	5,085,525	20,104,598
53,326	209,362	9,930	2,209,130	481,821	569,025	1,661,184	2,040,261	669,054	4,477,681	12,380,774	55,341,737
3,513	219,212	9	2,505,657	665,649	537,943	403,790				4,335,773	39,376,491
49,947	5,246	9,921	329,224	35,606	174,492					604,436	15,623,509
53,460	224,458	9,930	2,834,881	701,255	712,435	403,790				4,940,209	55,000,000
134	15,096		625,751	234,002	155,183	646,205	1,009,105	219,649	500,890	3,406,015	10,522,029

Summary of Allocation Percentages

The Department annually determines water contractor charges for the State Water Project based on allocations of costs among purposes of those facilities which are jointly used for more than one purpose. These allocations utilize the revised percentages for the California Aqueduct, Delta to Dos Amigos Pumping Plant reported herein, and the percentages previously reported to and approved by the Legislature, as well as preliminary estimates for facilities which have not been reported. These percentages are summarized in the table below.

SUMMARY OF COST ALLOCATION PERCENTAGES

(in percent of joint costs of the respective facilities)

Facilities of the State Water Project	Reimbursable Purposes			Nonreimbursable Purposes[a]			Total
	Water Supply	Power Generation	Total	Flood Control	Recreation and Fish and Wildlife Enhancement	Total	
Capital Costs of Features Jointly Used							
Project Conservation Facilities							
Frenchman Dam and Lake[b]	21.5	0	21.5	0	78.5	78.5	100.0
Antelope Dam and Lake[b]	0	0	0	0	100.0	100.0	100.0
Grizzly Valley Dam and Lake Davis[b]	5.1	0	5.1	0	94.9	94.9	100.0
Abbey Bridge Dam and reservoir[c]	0	0	0	0	100.0	100.0	100.0
Dixie Refuge Dam and reservoir[c]	0	0	0	0	100.0	100.0	100.0
Oroville Dam and reservoir[b][d]	61.3	35.8	97.1	0	2.9	2.9	100.0
California Aqueduct[b]	96.6	0	96.6	0	3.4	3.4	100.0
Delta Facilities[c]	86.0	0	86.0	0	14.0	14.0	100.0
Project Transportation Facilities							
California Aqueduct, excluding Coastal Branch[c][e]	97.0	0	97.0	0	3.0	3.0	100.0
South Bay Aqueduct:							
Del Valle Dam and reservoir[b]	25.2	0	25.2	26.8	48.0	74.8	100.0
North Bay Aqueduct[c]	100.0	0	100.0	0	0	0	100.0

a) Additional purposes may be identified after project formulation in the Delta is completed.
b) Final percentages, subject to periodic review as discussed on page 9.
c) Illustrative percentages only, assumed for current project financial and repayment analyses.
d) Percentages are applicable to Capital Costs of Features Jointly Used minus Federal Flood Control Payments.
e) A final allocation of facilities from Delta to Dos Amigos Pumping Plant has been made. 3.4 percent of these costs are allocated to recreation and fish and wildlife enhancement and are reported for reimbursement under AB 12. However, until the remainder of the aqueduct is finally reported the percentage for billing purposes is as shown.
Note: Percentages shown are those applicable to the costs of the facility as accounted for by the State, or, in the case of federal-state joint-use facilities (San Luis and Delta Facilities), only the State's share of the total cost.

The facilities which remain to be reported are two reservoirs in the Upper Feather River area, the Delta Facilities, and the transportation features of the California Aqueduct. Upon completion of project formulation for the Delta Facilities, costs may be allocated to purposes other than those shown in the above table. The allocation for the Delta Facilities is scheduled to be reported in 1982 as shown in the Table on page 9.

REVISED DERIVATION OF ALLOCATION PERCENTAGES FOR THE CALIFORNIA AQUEDUCT, SACRAMENTO-SAN JOAQUIN DELTA TO DOS AMIGOS PUMPING PLANT

Facilities of the California Aqueduct from the Sacramento-San Joaquin Delta to Dos Amigos Pumping Plant are operated for purposes of water supply and recreation and fish and wildlife enhancement. An allocation of facility costs among these purposes is required for the Department's administration of:

° The payment provisions of 31 contracts executed under the "Standard Provisions for Water Supply Contract" between the State and local water wholesaling and retailing agencies.

° The Davis-Dolwig Act provision that the Department shall report to the Legislature the State Water Project facility costs allocated to recreation and fish and wildlife enhancement.

Portions of these facilities are defined by the "Standard Provisions" as "Project conservation facilities" -- i. e., those constructed primarily to make a project water supply available in the Sacramento-San Joaquin Delta. The "project conservation facilities" include:

° A portion of Clifton Court Forebay, Delta Pumping Plant, O'Neill Forebay, Los Banos Reservoir, and the Aqueduct from the Delta to, but excluding, the Dos Amigos Pumping Plant.

° All of San Luis Dam, Reservoir, and Pumping-Generating Plant.

The remaining portions of the California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant are defined as "project transportation facilities" -- i.e., those constructed primarily to convey a project water supply from the Delta to the distribution systems of water contractors. The significance of "project conservation facilities" and "project transportation facilities" is that the reimbursable costs thereof are assessed water contractors under separate and distinct criteria.

Previous Derivation of Allocation Percentages

The derivation of allocation percentages for the California Aqueduct from the Delta to Dos Amigos Pumping Plant was first reported to the Legislature, under Davis-Dolwig Act procedures, in Bulletin 132-70, Appendix D, "Costs of Recreation and Fish and Wildlife Enhancement", May 1970, and was approved by the California Statues of 1970, Chapter 833. That derivation included the purposes of (1) water supply, (2) power generation, and (3) recreation and enhancement, and indicated the following allocation percentages of joint costs:

(1) Water Supply
- Capital..... 93.7%
- Minimum OMP&R..... 91.1%

(2) Power Generation
- Capital..... 2.8%
- Minimum OMP&R..... 3.0%

(3) Recreation
- Capital..... 3.5%
- Minimum OMP&R..... 5.9%

The above derivation is in need of revision for the following factors:

° Since 1970, projections of recreation benefits have declined. The 1970 projection of recreation benefits was based on population projections which were much higher than current population projections. The recreation use which is now occurring along the California Aqueduct was not included in the initial cost allocation. The net effect of updating the recreation use from the Delta to Dos Amigos Pumping Plant is a lowering of recreation benefits.

TABLE I

REVISED DERIVATION OF ALLOCATION PERCENTAGES
CALIFORNIA AQUEDUCT: DELTA TO DOS AMIGOS PUMPING PLANT

(in thousands of dollars unless otherwise noted)

Item of Benefit or Cost[a]	Water Supply[b]	Recreation (c	Total
1. Benefits	50,773	1,696	52,469
2. Alternative Costs	20,570	2,464	23,034
3. Justifiable Costs	20,570	1,696	22,266
4. Separable Costs:			
Total	19,078	972	20,050
Capital	12,274	354	12,628
OMP&R	6,804	618	7,422
5. Remaining Justifiable Costs	1,492	724	2,216
6. Distribution of Remaining Justifiable Costs	67.3%	32.7%	100.0%
7. Remaining Joint Costs:			
Total	1,005	487	1,492
Capital	870	422	1,292
OMP&R	135	65	200
8. Total Allocated Project Costs:			
Total	20,083	1,459	21,542
Capital	13,144	776	13,920
OMP&R	6,939	683	7,622
9. Distribution of Total Project Costs:			
Total	93.2%	6.8%	100.0%
Capital	94.4%	5.6%	100.0%
OMP&R	91.0%	9.0%	100.0%
10. Specific Costs:			
Total	3,133	866	3,999
Capital (Recreation Features)[c]	0	313	313
OMP&R (Recreation Features)[c]	0	518	518
Variable OMP&R for Features Jointly Used[d]	3,133	35	3,168
11. Allocated Costs of Features Jointly Used:			
Total, Excluding Variable OMP&R	16,950	593	17,543
Capital	13,144	463	13,607
Minimum OMP&R	3,806	130	3,936
12. Distribution of Costs of Features Jointly Used:			
Total, Excluding Variable OMP&R	96.6%	3.4%	100.0%
Capital	96.6%	3.4%	100.0%
Minimum OMP&R	96.7%	3.3%	100.0%
Project Conservation Facilities			
13. Allocated Costs of Features Jointly Used:[e]			
Total, Excluding Variable OMP&R	8,293	290	8,583
Capital	6,826	240	7,066
Minimum OMP&R	1,467	50	1,517
14. Distribution of Costs of Features Jointly Used:			
Total, Excluding Variable OMP&R	96.6%	3.4%	100.0%
Capital	96.6%	3.4%	100.0%
Minimum OMP&R	96.7%	3.3%	100.0%
Project Transportation Facilities			
15. Allocated Costs of Features Jointly Used:[e]			
Total, Excluding Variable OMP&R	8,657	303	8,960
Capital	6,318	223	6,541
Minimum OMP&R	2,339	80	2,419
16. Distribution of Costs of Features Jointly Used:			
Total, Excluding Variable OMP&R	96.6%	3.4%	100.0%
Capital	96.6%	3.4%	100.0%
Minimum OMP&R	96.7%	3.3%	100.0%

a) Annual benefits and costs thru year 2017 converted to equal annual equivalent values, at 4.462% interest, for 50-year period 1968-2017. Items 1-12 associated with separable costs-remaining benefits method; Items 13-16 associated with proportionate use of facilities method.
b) Includes associated purpose of power generation.
c) Includes associated purpose of fish and wildlife enhancement.
d) Shown herein as "specific" cost to simplify presentation.
e) Distributed by percentages shown in Table V.

FIGURE 1-A

ILLUSTRATIVE CALCULATIONS OF ALLOCATION PERCENTAGES FOR TOTAL (CAPITAL + OMP&R) JOINT COSTS OF CALIFORNIA AQUEDUCT: DELTA TO DOS AMIGOS PUMPING PLANT

Step No.	Calculation
1	alternative water supply costs ($20,570,000) = justifiable water supply costs* ($20,570,000)
2	recreation benefits ($1,696,000) = justifiable recreation costs* ($1,696,000)
3	total project costs ($21,542,000) - hypothetical recreation project costs ($2,464,000) = separable water supply costs ($19,078,000)
4	total project costs ($21,542,000) - hypothetical water supply costs ($20,570,000) = separable recreation costs ($972,000)
5	justifiable water supply costs ($20,570,000) - separable water supply costs ($19,078,000) = remaining justifiable water supply costs ($1,492,000)
6	justifiable recreation costs ($1,696,000) - separable recreation costs ($972,000) = remaining justifiable recreation costs ($724,000)
7	remaining justifiable water supply costs ($1,492,000) + remaining justifiable recreation costs ($724,000) = total remaining justifiable costs ($2,216,000)
8	$\frac{\text{remaining justifiable water supply costs } (\$1,492,000)}{\text{total remaining justifiable costs } (\$2,216,000)} \times 100$ = percent of remaining justifiable costs distributable to water supply (67.3%)
9	$\frac{\text{remaining justifiable recreation costs } (\$724,000)}{\text{total remaining justifiable costs } (\$2,216,000)} \times 100$ = percent of remaining justifiable costs distributable to recreation (32.7%)
10	total allocated project costs ($21,542,000) - separable project costs ($20,050,000) = remaining joint project costs ($1,492,000)
11	remaining joint project costs ($1,492,000) X percent distributable to water supply (67.3%) = remaining joint water supply costs ($1,005,000)
12	remaining joint project costs ($1,492,000) X percent distributable to recreation (32.7%) = remaining joint recreation costs ($487,000)
13	separable water supply costs ($19,078,000) + remaining joint water supply costs ($1,005,000) = total allocated water supply costs ($20,083,000)
14	separable recreation costs ($972,000) + remaining joint recreation costs ($487,000) = total allocated recreation costs ($1,459,000)
15	specific water supply costs ($3,133,000) + specific recreation costs ($866,000) = total specific costs ($3,999,000)
16	total allocated water supply costs ($20,083,000) - specific water supply costs ($3,133,000) = joint costs allocated to water supply ($16,950,000)
17	total allocated recreation costs ($1,459,000) - specific recreation costs ($866,000) = joint costs allocated to recreation ($593,000)
18	joint costs allocated to water supply ($16,950,000) + joint costs allocated to recreation ($593,000) = total joint project costs ($17,543,000)
19	51.93% of capital costs of total joint project costs ($7,066,000) + 38.54% of OMP&R costs of total joint project costs ($1,517,000) = total joint project costs allocated to conservation facilities ($8,583,000)
20	48.07% of capital costs of total joint project costs ($6,541,000) + 61.46% of OMP&R costs of total joint project costs ($2,419,000) = total joint project costs allocated to transportation facilities ($8,960,000)
21	51.93% of capital costs of joint costs allocated to recreation ($240,000) + 38.54% of OMP&R costs of joint costs allocated to recreation ($50,000) = total joint conservation facility costs allocated to recreation ($290,000)
22	48.07% of capital costs of joint costs allocated to recreation ($222,000) + 61.46% of OMP&R costs of joint costs allocated to recreation ($80,000) = total joint transportation facility costs allocated to recreation ($302,000)
23	total joint project costs allocated to conservation facilities ($8,583,000) - total joint conservation facility costs allocated to recreation ($290,000) = total conservation facility costs allocated to water supply ($8,293,000)
24	$\frac{\text{total joint conservation facility costs allocated to water supply } (\$8,293,000)}{\text{total joint project costs allocated to conservation facilities } (\$8,583,000)} \times 100$ = percent of total joint conservation facility costs allocated to water supply (96.6%)
25	$\frac{\text{total joint conservation facility costs allocated to recreation } (\$ 290,000)}{\text{total joint project costs allocated to conservation facilities } (\$8,583,000)} \times 100$ = percent of total joint conservation facility costs allocated to recreation (3.4%)
26	percent of total joint conservation facility costs allocated to water supply (96.6%) + percent of total joint conservation facility costs allocated to recreation (3.4%) = 100%
27	total joint project costs allocated to transportation facilities ($8,960,000) - total joint transportation facility costs allocated to recreation ($303,000) = total joint transportation facility costs allocated to water supply ($8,657,000)
28	$\frac{\text{total joint transportation facility costs allocated to water supply } (\$8,657,000)}{\text{total joint project costs allocated to transportation facilities } (\$8,960,000)} \times 100$ = percent of total joint transportation facility costs allocated to water supply (96.6%)
29	$\frac{\text{total joint transportation facility costs allocated to recreation } (\$ 303,000)}{\text{total joint project costs allocated to transportation facilities } (\$8,960,000)} \times 100$ = percent of total joint transportation facility costs allocated to recreation (3.4%)
30	percent of total joint transportation facility costs allocated to water supply (96.6%) + percent of total joint transportation facility costs allocated to recreation (3.4%) = 100%

*Justifiable costs are the total benefits of a purpose or the single-purpose alternative costs providing the same benefits, whichever are less.

° In 1970, power generation was included as a separate project purpose in the cost allocation for computing the unit surcharge, under Article 30(b) of the Standard Provisions, to be assessed project water applied on "excess lands". Article 30(b) has been deleted from the water supply contracts; therefore, power generation is no longer a purpose in the cost allocation.

° In the 1970 derivation an interest rate of 4.357% was used. In the revised derivation all costs and benefits are stated in terms of equal annual equivalent values for a 50-year period at the current project interest rate of 4.462%.

Special Requirements re the Allocation Method

While the "Standard Provisions" require that costs of all project facilities be allocated among reimbursable and nonreimbursable purposes, they do not specify the method by which costs of those project facilities below the Sacramento-San Joaquin Delta shall be allocated.

Under the Department's procedures, costs of those project facilities of the California Aqueduct which are defined in whole or in part as "project conservation facilities" are to be allocated in one allocation among reimbursable and nonreimbursable purposes by the separable costs-remaining benefits method.

Certain of the project facilities from the Delta to Dos Amigos Pumping Plant are shared jointly by the State and the United States (O'Neill Forebay, Los Banos Reservoir, the Aqueduct between O'Neill Forebay and Dos Amigos Pumping Plant, and San Luis Dam, Reservoir, and Pumping-Generating Plant). Under a 1961 agreement,(1 the Department is paying 55 percent and the Bureau of Reclamation 45 percent of the joint construction costs of these state-federal facilities, as well as those from and including Dos Amigos Pumping Plant to Kettleman City. Under the proposed operating agreement for these state-federal facilities, annual joint operating costs, excluding power and energy costs and revenues, will be shared in the same 55:45 ratio, subject to redetermination in 1980.

Under the Department's procedures, the State's 55 percent share of the joint costs for the state-federal facilities is distributed among the component facilities in proportion to the products of total joint cost multiplied by the State's percent share of total capacity for each facility. The State's share of capacity ranges from 84.43 percent (for the aqueduct reach terminating at Kettleman City) to 52.38 percent (for San Luis Reservoir and Pumping-Generating Plant, O'Neill Forebay, Los Banos Reservoir, and the Aqueduct reach to Dos Amigos Pumping Plant).

By 1965 letter agreement,(2 the Bureau of Reclamation is bearing, as a federal-only responsibility, the costs of Los Banos Reservoir which are allocable to flood protection of the area downstream from the California Aqueduct. The costs of the Reservoir that are allocable to flood protection of the Aqueduct itself are borne by the Department and the Bureau in accordance with the 55:45 ratio as costs in lieu of more expensive crossings of streams traversed by the joint-use Aqueduct.

Under a 1969 agreement,(3 the Department of Parks and Recreation will pay 55 percent, and the Bureau of Reclamation 45 percent (not to exceed $3,015,000), of the construction costs of the initial recreation developments for the joint-use facilities. After construction by the Bureau, Parks will take possession and control; administer these developments as part of the State Parks System; and, at Parks' expense, operate and maintain these facilities. Parks will bear the costs of constructing and operating those future developments which will be necessary to satisfy the continuing growth in recreation demands at the joint-use facilities.

Footnotes appear on page 31.

Current Derivation of Allocation Percentages

Three major steps in the following sequence are required to allocate the total costs of California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant among purposes of the project conservation facilities and project transportation facilities:

1. Separate those costs and benefits allocated to the United States from the total for San Luis Dam, Reservoir, and Pumping-Generating Plant; O'Neill Forebay; Los Banos Reservoir; and the Aqueduct between O'Neill Forebay and Dos Amigos Pumping Plant.

2. Allocate the State's share of total costs for the facilities from the Delta to Dos Amigos Pumping Plant by the separable costs-remaining benefits method among the State Water Project purposes of water supply, and recreation and fish and wildlife enhancement. [This step is necessary for determining those costs to be reported to the Legislature under the Davis-Dolwig Act.]

3. Divide the State's share of total costs, by purpose, between project conservation facilities and project transportation facilities by the proportionate use of facilities method, as specified in Article 22(e) of the Standard Provisions. [This step is necessary for determining annual water charges.]

The following sections of this exhibit describe, in detail, the State's share of costs and benefits for California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant [(1) of the sequence described above]. The derivation of the percentages of the State's multipurpose costs allocated to the purposes of water supply, and recreation and fish and wildlife enhancement is shown in the upper portion of Table I [(2) of the sequence described above]. The derivation of the percentages applicable to project conservation facilities and project transportation facilities from the Delta to Dos Amigos Pumping Plant is shown on the lower portion of Table I [(3) of the sequence described above]. Computational steps summarized in Table I are outlined in Figure I-A.

The costs of a multipurpose facility may be estimated and accounted as the sum of specific costs (those for physical features of the facility which can be readily identified as serving one project purpose exclusively -- such as recreation features) and joint costs (those for physical features which generally serve more than one purpose -- such as multipurpose dams and reservoirs). The specific costs of recreation features (except for associated land costs) are accounted by agencies other than the Department of Water Resources and are financed by funds other than project funds. All other specific costs and all joint costs of the State Water Project facilities are accounted by the Department and financed by project funds.

The costs of a multipurpose facility also may be estimated (but not accounted) on the basis of derived separable and remaining joint costs. (Separable costs for each purpose of a multipurpose facility are derived as the difference in the estimated total costs of the facility less the estimated costs of a similar facility designed so as to exclude the particular purpose. The separable costs of a facility are the total separable costs for all purposes of the facility. The remaining joint costs of a facility are the differences in the estimated total costs of the facility less the estimated separable costs of the facility.)

Justifiable costs are the estimated maximum expenditures which theoretically would be justified to realize the benefits of a multipurpose facility. Remaining justifiable costs are those justifiable costs in excess of the sum of the separable costs of purposes to be accommodated by a multipurpose facility.

Under the separable costs-remaining benefits method, the estimated total costs of a multipurpose facility are allocated to each purpose of the

facility by the sum of:

° The estimated separable costs of each purpose (Item 4 of Table I).

° A share of the estimated remaining joint costs allocated among purposes (Item 7 of Table I) on the basis of remaining justifiable costs of each purpose (Items 5 and 6 of Table I).

Conventionally, the total costs allocated to each purpose (Item 8 of Table I), expressed as a percentage of such total costs (Item 9 of Table I), are the final result of the allocation procedure.

However, because some of the specific costs of the State Water Project are accounted by agencies other than the Department of Water Resources, the percentages of each purpose's allocation of the estimated total costs must be adjusted to a percentage applicable to the estimated joint costs (Item 12 of Table I) by deducting the estimated specific costs. The resulting percentages can then be applied to the actual joint costs of project facilities of the California Aqueduct from the Delta to Dos Amigos Pumping Plant as accounted by the Department.

For cost allocations of the project transportation facilities, total operation, maintenance, power, and replacement (OMP&R) costs are classified as either minimum OMP&R costs (those incurred irrespective of the amount of project water deliveries) or variable OMP&R costs (those incurred in an amount which is dependent upon and varies with the magnitude of project water deliveries). Minimum OMP&R costs are allocated among purposes and among contractors on the basis of percentages that are constant for all years. However, variable OMP&R costs are distributed annually in proportion to the actual water quantities delivered for each purpose and for each contractor. Thus, for derivations of allocation percentages applicable to the costs of project transportation facilities, estimated variable OMP&R costs are deducted from estimated total annual OMP&R costs (Item 10, Table I) so that the resulting percentages are applicable to the capital and minimum OMP&R costs only.

The estimated joint costs allocated between project conservation facilities and project transportation facilities (Items 13 and 15 of Table I, respectively) by the proportionate use of facilities method, as described in the Department's Bulletin 132-69, "The California State Water Project in 1969", June 1969 (p. 108). [The joint costs allocated to nonreimbursable purposes (recreation and fish and wildlife enhancement) are distributed between project conservation facilities and project transportation facilities in the same ratio that joint costs allocated to reimbursable purposes (water supply and power generation) are distributed between these two classifications of facilities.] The resulting percentages (Items 14 and 16 of Table I) can then be applied to the actual joint costs of the project conservation facilities and project transportation facilities for the California Aqueduct from the Delta to Dos Amigos Pumping Plant as accounted by the Department.

All items of benefits and costs shown in Table I are stated in terms of equal annual equivalent values for the 50-year period 1968 through 2017 at 4.462 percent interest. The period of analysis represents the first 50 years of operation of the features jointly used by purposes for California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant.

The applicable interest rate represents the current project interest rate as shown in Bulletin 132-76 (p. 84). The "project interest rate", which is the rate basic to payments of reimbursable State Water Project costs, is defined as the weighted average interest costs on cumulative sales of Burns-Porter bonds and other supplemental securities sold and loans obtained for financing project facilities, excluding the Oroville Revenue Bonds.

The remainder of this exhibit explains the bases of each item shown in Table I.

Benefits are the net value of goods and services that will directly result from operation of California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant.

Water Supply Benefits

The purpose of water supply includes both the development of a water supply in project conservation facilities and the conveyance of that supply in project transportation facilities to project service areas.

Measure of Benefits

Water supply benefits are measured at the points of delivery from the project facilities and are evaluated by different methods for agricultural use and for municipal and industrial use.

The measure of benefit for agricultural use is taken as the difference between net returns from farming operations with and without project water, reduced by the costs of local distribution systems between project facilities and farm headgates. The net return from farming operations is considered to be the remainder of gross income less all farm expenses (except water costs and either land rental or interest on land investment).

The measure of benefit for municipal and industrial use is taken as the cost of an equivalent water supply so used from the least expensive of any source --multipurpose or single-purpose--other than project facilities, as limited by the estimated maximum price users are willing to pay.

The estimated water supply benefits of the State Water Project, exclusive of the Upper Feather Division, are shown in Table II. These estimates reflect entitlement water service under long-term contracts. Excluded are surplus water service under short-term contracts and federal water service from joint state facilities.(4

TABLE II

TOTAL WATER SUPPLY BENEFITS FROM FACILITIES OF STATE WATER PROJECT (EXCEPT UPPER FEATHER DIVISION)

	Maximum Annual Entitlement (a (acre-feet)	Equal Annual Equivalent Entitlement (b (acre-feet)	Estimated Unit Net Benefits(c (dollars per acre-foot)	Equal Annual Equivalent Net Benefits(b (thousands of dollars)
Feather River	37,100	15,701	10.00	157
North Bay	67,000	28,089	23.87	670
South Bay	188,000	144,985	38.00	5,509
San Joaquin Valley	1,355,000	826,443	38.87	32,124
Central Coastal	82,700	30,563	181.81	5,557
Southern California	2,497,500	1,397,583	204.41	285,680
PROJECT TOTAL	4,227,300	2,443,364	134.94	329,697

a) Not including 2,700 acre-feet for Upper Feather Division.
b) Annual values thru 2017, converted to equal annual equivalents for 50-year period 1968-2017, at 4.462% interest.
c) Measured at points of delivery from project facilities.

Costs and benefits used in this exhibit are the same as were used in the previous cost allocation for the Delta to Dos Amigos Pumping Plant with the exception of updating recreation use projections, elimination of the separate

purpose of Power Generation, and updating the project interest rate. Therefore, the water supply unit benefits in Table II are the same as shown in Bulletin 132-70, Appendix D, page 19.

Distribution Among Project Facilities

Water supply benefits are derived from the combined operation of project conservation facilities and project transportation facilities (except for the relatively minor reservoirs in the Upper Feather Division, which are operated primarily for local needs). Costs of these facilities are allocated separately among project purposes. To compute such cost allocations, total project water supply benefits are distributed among the component facilities of the State Water Project, including the Additional Facilities, in the same proportion as the water supply costs of those facilities.

The portion of the total water supply benefits of the project that are assignable to the California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant is estimated to be $50,773,000 annually:

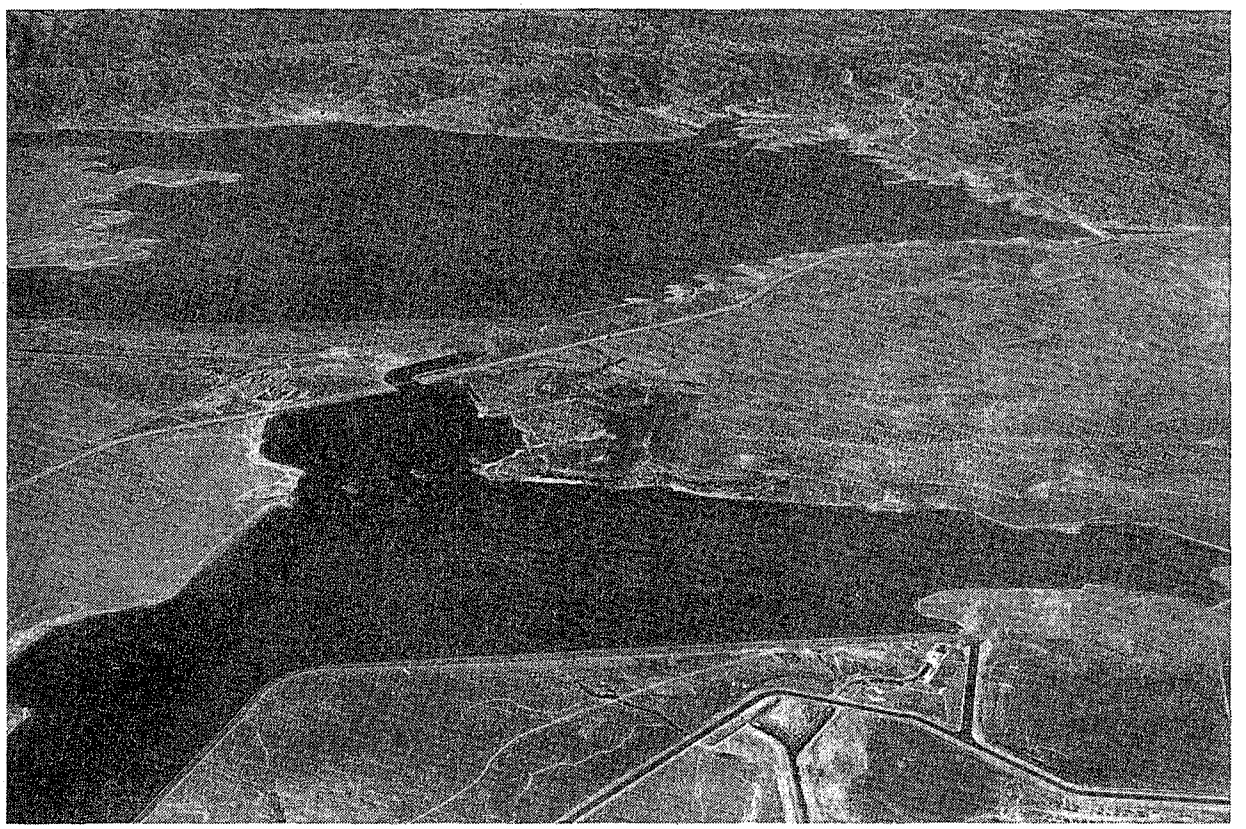
(a) Estimated total costs of California Aqueduct, Delta to Dos Amigos Pumping Plant allocable to water supply.....$ 20,083,000

(b) Estimated total costs of the State Water Project, excluding the Upper Feather Division, allocable to water supply.....$130,390,000

(c) Percent (a) of (b).....15.40%

(d) Estimated total water supply benefits of the State Water Project excluding the Upper Feather Division (from Table II).....$329,697,000

(e) Total water supply benefits assigned to the California Aqueduct, Delta to Dos Amigos Pumping Plant .....$ 50,773,000



O'Neill Forebay (foreground) and San Luis Reservoir

Recreation and Fish and Wildlife Enhancement Benefits

Estimated recreation and fish and Wildlife enhancement benefits for the California Aqueduct from the Delta to Dos Amigos Pumping Plant include those associated with initial and future recreation and fish and wildlife enhancement features at San Luis Reservoir, O'Neill Forebay, Los Banos Reservoir, Clifton Court Forebay, Bethany Reservoir, and the Aqueduct proper.

For this exhibit, the recreation use in the Department's Bulletin 117-7, "San Luis Reservoir and Forebay Recreation Development Plan", May 1965, was updated using the population projections in Bulletin 160-74, "The California Water Plan, Outlook in 1974", resulting in current recreation benefit projections for San Luis Reservoir and O'Neill Forebay being lower than the 1970 projections. Unit recreation and fish and wildlife enhancement unit benefit rates for San Luis Reservoir and O'Neill Forebay are estimated to vary from $1.92 per recreation day commencing in 1968 to $1.80 per recreation day for 1988 and thereafter. The projected decrease in unit benefit rates in 1988 is due to expected increases in water surface elevation fluctuations as water entitlements increase to the maximum annual amounts provided for by the water supply contracts.

Recreation use at Los Banos Reservoir was reported in the Department's Bulletin 117-11, "Los Banos Reservoir Recreation Development Plan", April 1971. The unit benefit rate for Los Banos Reservoir is estimated to be $1.83 per recreation day based on natural flow into Los Banos Reservoir, in lieu of a possible pump diversion from the California Aqueduct which would stabilize the reservoir water surface elevation during the recreation season.

Recreation use and unit benefit rates at Clifton Court Forebay, Bethany Reservoir, and the Aqueduct from the Delta to Dos Amigos Pumping Plant were estimated in 1975 by the Department's Recreation Planning Section.

Benefit unit rates are $1.75 per recreation day for aqueduct fishing, $2 per recreation day for bikeway use, $4 per recreation day for waterfowl hunting at Clifton Court Forebay, and $1.50 per recreation day for fishing at Clifton Court Forebay and Bethany Reservoir.

Recreation benefit unit values used in this exhibit are the same as were used in the previous cost allocation for the Delta to Dos Amigos Pumping Plant. Two factors are used to determine these unit values: (a) variety and quality of recreation [the type of recreation activity, quality of experience, and quality of development, operation, and maintenance of the facilities and area], and (b) esthetic qualities of site [fluctuations in water surface of reservoir and other aquatic factors, ecologic-topographic factors, vegetative cover, climate, and other environmental influences]. Point scores of these factors are established as follows:

Factor	Rating	Point Score
Variety and quality of recreation	Poor	1
	Fair	3
	Good	5
Esthetic quality of the site	Poor	1
	Fair	3
	Good	5

The point scores resulting from application of these factors are added to the minimum value of $0.50 per recreation day; with each point valued at $0.20. Thus, the maximum value resulting from this evaluation is $2.50 per recreation day.

Current estimates of the total (both State and federal shares) recreation benefits for San Lus Reservoir, O'Neill Forebay, Los Banos Reservoir and the California Aqueduct are summarized in Table III.

TABLE III

TOTAL (STATE AND FEDERAL) RECREATION AND FISH AND WILDLIFE ENHANCEMENT USE AND BENEFITS

Decade	Recreation Use (recreation days)	Unit Value (dollars per recreation day)	Total Benefits (dollars)
	San Luis Reservoir and O'Neill Forebay		
1968-77	3,333,000	1.92	6,399,000
1978-87	7,894,000	1.92	15,156,000
1988-97	11,692,000	1.80	21,046,000
1998-07	15,874,000	1.80	28,573,000
2008-17	21,615,000	1.80	38,907,000
Subtotal	60,408,000		110,081,000
Equal annual equivalent benefit at 4.462% interest for 50-year period 1968-2017			1,544,000
	Los Banos Reservoir		
1968-77	193,000	1.83	353,000
1978-87	758,000	1.83	1,387,000
1988-97	2,097,000	1.83	3,838,000
1998-07	2,839,000	1.83	5,195,000
2008-17	3,616,000	1.83	6,617,000
Subtotal	9,503,000		17,390,000
Equal annual equivalent benefit at 4.462% interest for 50-year period 1968-2017			211,000
	California Aqueduct		
Equal annual equivalent benefit at 4.462% interest for 50-year period 1968-2017			124,000
Total equal annual equivalent benefits at 4.462% interest for 50-year period 1968-2017			1,879,000

Under the agreement between the Bureau of Reclamation and the Department of Parks and Recreation(5, estimates are that the Bureau will contribute $2,497,000 of the $5,550,000 required to construct the initial recreation and fish and wildlife enhancement features at San Luis and Los Banos Reservoirs and O'Neill Forebay. Of the estimated total $2,497,000 in federal contributions, $2,289,000 will be for features at San Luis Reservoir and O'Neill Forebay, and $208,000 will be for features at Los Banos Reservoir. The State has assumed responsibility for the operation, maintenance, and replacement costs of these initial recreation and fish and wildlife enhancement features. In addition, $11,627,000 will be required to construct future features to satisfy the continuing growth in recreation demand. The State will assume the responsibility for construction, operation, maintenance, and replacement costs for these future features. The estimated division of total specific recreation and fish and wildlife enhancement costs between the State and the Bureau for both initial and future features is shown in Table IV.

TOTAL (STATE AND FEDERAL) RECREATION AND
FISH AND WILDLIFE ENHANCEMENT SPECIFIC COSTS

(thousands of dollars)

Recreation and Fish and Wildlife Enhancement Features	First Costs (a	Equal Annual Equivalent Costs at 4.462% Interest for 50-Year Period 1968-2017		
		Capital	OMP&R	Total
San Luis Reservoir and O'Neill Forebay				
Federal share	2,289	88	0	88
State share	11,807	258	446	704
Total	14,096	346	446	792
Los Banos Reservoir				
Federal share	208	8	0	8
State share	2,873	55	72	127
Total	3,081	63	72	135
Total, Delta to Dos Amigos Pumping Plant				
Federal share	2,497	96	0	96
State share	14,680	313	518	831
Total	17,177	409	518	927

a) "First costs" represent total capital costs exclusive of interest charges during construction period.

Recreation and fish and wildlife enhancement benefits realized at the joint-use facilities are assumed to be divided between the State and federal projects in proportion to the equal annual equivalent recreation and fish and wildlife enhancement costs financed by each. The State's share of these benefits, for project facilities from the Delta to Dos Amigos Pumping Plant, is derived as follows:

STATE SHARE OF RECREATION BENEFITS
(Equal Annual Equivalent Values unless otherwise noted)

San Luis Reservoir and O'Neill Forebay	
a. State's share of recreation costs	$ 704,000
b. Total recreation costs	$ 792,000
c. Percent (a) of (b)	88.9%
d. Total recreation benefits	$1,544,000
e. State share of recreation benefits	$1,373,000
Los Banos Reservoir	
a. State's share of recreation costs	$ 127,000
b. Total recreation costs	$ 135,000
c. Percent (a) of (b)	94.1%
d. Total recreation benefits	$ 211,000
e. State share of recreation benefits	$ 199,000
California Aqueduct (State's share 100%)	$ 124,000
State Share of Recreation Benefits Total Facilities From Delta to Dos Amigos Pumping Plant	$1,696,000

Total Project Costs

The estimated State share of costs of California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant is summarized in Table V. As previously stated, these facilities are defined by the Standard Provisions as either "project conservation facilities" or "project transportation facilities". These facilities, in turn, consist of (a) features that are jointly used by purposes [water supply, recreation, and fish and wildlife enhancement] and (b) recreation and fish and wildlife enhancement features.

The estimated State shares of costs of features that are jointly used by purposes are shown in Bulletin 132-69. As described in that bulletin (page 108), the estimated capital and minimum OMP&R costs of these features are divided between project conservation facilities and project transportation facilities in the following proportions (conservation facilities:transportation facilities):

Delta to O'Neill Forebay.....31:69
O'Neill Forebay to Dos Amigos Pumping Plant (including Los Banos Reservoir).....27:73
San Luis Dam, Reservoir, and Pumping Generating Plant.....100:00

Variable OMP&R costs (primarily costs of power and energy consumed in the operation of the Delta Pumping Plant) are allocated on the basis of annual water quantities placed in San Luis Reservoir storage (conservation) and conveyed directly from the Delta to Dos Amigos Pumping Plant (transportation). Such costs which are associated with the San Luis Reservoir storage, including the variable OMP&R of the San Luis Pumping-Generating Plant, are reclassified as minimum OMP&R costs -- rather than variable OMP&R costs.

For a year when San Luis Reservoir storage is being withdrawn to provide for downstream deliveries, the actual variable OMP&R costs of the Delta Pumping Plant for the year are increased. This increase is in proportion to the ratio of the annual delivery quantity derived from San Luis Reservoir storage divided by the actual annual delivery quantity conveyed through the Plant.

The increase of such costs for repayment (under the Transportation Charge) is offset by credits to the minimum OMP&R costs of San Luis Reservoir (repaid under the Delta Water Charge). This "banking" procedure is accounted for in the estimated OMP&R costs shown in Table V.

The values under the first heading of Table V show the division of costs of features jointly used by purposes between the project conservation facilities and the project transportation facilities and develop the percents of total costs assigned to these two types of facilities. These percents apply for dividing the costs (and benefits) of recreation and fish and wildlife enhancement features between the project conservation facilities and the project transportation facilities.

The State shares of specific costs of recreation and fish and wildlife enhancement features are summarized under the second heading of Table V(from Table IV). The total State shares of all project facilities from the Delta to Dos Amigos Pumping Plant are shown under the third heading of Table V.

TABLE V

TOTAL PROJECT COSTS (STATE SHARE)

(thousands of dollars unless otherwise noted)

Facilities and Features	First Costs	Equal Annual Equivalent Costs at 4.462% Interest for 50-Year Period 1968-2017				
		Capital Costs	OMP&R Costs			Total
			Minimum	Variable	Total	
Features Jointly Used by Purposes						
Delta to O'Neill Forebay						
Project Conservation Facilities	50,518	2,581	991	0	991	3,572
Project Transportation Facilities	112,444	5,745	2,235	3,168	5,403	11,148
O'Neill Forebay to Dos Amigos Pumping Plant						
Project Conservation Facilities	5,355	295	68	0	68	363
Project Transportation Facilities	14,470	796	184	0	184	980
San Luis Dam, Reservoir, and Pumping-Generating Plant						
Project Conservation Facilities	75,375	4,190	458	0	458	4,648
Project Transportation Facilities	0	0	0	0	0	0
TOTALS, DELTA TO DOS AMIGOS PUMPING PLANT:						
Project Conservation Facilities	131,248	7,066	1,517	0	1,517	8,583
Project Transportation Facilities	126,914	6,541	2,419	3,168	5,587	12,128
Percent Distribution						
Project Conservation Facilities	-	51.93%	38.54%	0.00%	21.35%	41.44%
Project Transportation Facilities	-	48.07%	61.46%	100.0%	78.65%	58.56%
Associated Recreation and Fish and Wildlife Enhancement Features						
San Luis Reservoir and O'Neill Forebay (State share)	11,807	258	446	0	446	704
Los Banos Creek Reservoir (State share)	2,873	55	72	0	72	127
Total California Aqueduct Facilities From Delta to Dos Amigos Pumping Plant						
Features jointly used	258,162	13,607	3,936	3,168	7,104	20,711
Recreation and fish and wildlife enhancement features[a]	14,680	313	518	0	518	831
TOTAL	272,842	13,920	4,454	3,168	7,622	21,542

a) Certain annual operating costs of conveying recreation water from features jointly used for uses within recreation and fish and wildlife enhancement features will be of a "variable" character. However, all such costs are included herein under the "minimum" category, since the Standard Provisions do not apply.

Alternative Costs

In project formulation and cost allocation studies, the alternative costs of a purpose included in the planned operation of a multipurpose facility are estimated as the costs of the least expensive single-purpose alternative means that would provide the same benefits for that purpose as would the multipurpose facility. Alternative means include the possible construction of a single-purpose facility at the same site as the multipurpose facility. For water supply, the alternative means also include a desalting plant or a waste-water reclamation plant. For recreation and fish and wildlife enhancement, the alternative means also include enlargement of an existing water-related recreational development in the immediate vicinity. Inclusion of a purpose in the planned operation of a multipurpose facility is justified only if the costs allocated to the purpose do not exceed the alternative costs or the benefits of the purpose, whichever is less.

Water Supply Alternative Costs

The least expensive single-purpose means of providing the same water supply benefits as will be provided by the multipurpose California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant are estimated to be those multipurpose facilities resized so as to accommodate the purpose of water supply only. The costs of the single-purpose water supply facilities essentially would be the costs of the features jointly used by purposes of the complete multipurpose facilities. Recreation and fish and wildlife enhancement features would not be needed. Thus, the cost of the alternative single-purpose water supply facilities is equal to the total costs of the multipurpose facilities, less:

- The specific costs of recreation and fish and wildlife enhancement features.
- The incremental costs of providing the last 74 cubic feet per second of capacity in the Aqueduct from the Delta to Dos Amigos Pumping Plant, which is required for the conveyance of recreation water for use below Dos Amigos Pumping Plant.
- The estimated reduction in costs of Los Banos Reservoir if sized to a total capacity of 22,000 acre-feet for flood protection of the California Aqueduct only, rather than the present capacity of 35,500 acre-feet for flood protection and recreation.

The total estimated costs of this hypothetical facility are summarized in Table VI.

TABLE VI

WATER SUPPLY ALTERNATIVE COSTS (STATE SHARE)
(thousands of dollars)

Item	First Costs	Equal Annual Equivalent Costs at 4.462% Interest: 50-Year Period 1968-2017		
		Capital	OMP&R	Total
Total project costs	272,842	13,920	7,622	21,542
less: Costs attributable to recreation:				
Cost of providing for 74 cubic feet per second of conveyance capacity	3,655	29	64	93
Specific costs of recreation and fish and wildlife enhancement features	14,680	313	553	866
Additional costs of Los Banos Reservoir as built (35,500 acre-feet capacity) over and above that size required only for flood protection of Aqueduct (22,000 acre-feet)	218	12	1	13
remainder: Water supply alternative costs	254,289	13,566	7,004	20,570

Recreation and Fish and Wildlife Enhancement Alternative Costs

The least expensive single-purpose means of providing the same recreation and fish and wildlife enhancement benefits as the multipurpose facilities from the Delta to Dos Amigos Pumping Plant are estimated to include:

° An aqueduct from the Delta to San Luis Reservoir, sized to provide 274 cubic feet per second of conveyance capacity; 200 cubic feet per second of which is for maintaining a single-purpose San Luis Reservoir at a constant water surface elevation, and 74 cubic feet per second of which is to provide recreation water for use below Dos Amigos Pumping Plant.

° The State's share of a San Luis Pumping Plant sized to pump 200 cubic feet per second of water into a San Luis Reservoir.

° The State's share of a San Luis Dam and Reservoir of 72,700 acre-feet gross capacity.

° The State's share of a Los Banos Reservoir of 20,500 acre-feet gross capacity.

° The State's share of recreation and fish and wildlife enhancement features essentially as planned for the multipurpose facilities.

Table VII summarizes the total estimated State's share of the costs of this hypothetical facility.

TABLE VII

RECREATION ALTERNATIVE COSTS (STATE SHARE)

(thousands of dollars)

Item	First Costs	Equal Annual Equivalent Costs at 4.462% Interest: 50-Year period 1968-2017		
		Capital	OMP&R	Total
Aqueduct from Delta to San Luis Reservoir	12,064	608	236	844
San Luis Dam, Reservoir, and Pumping Plant	10,534	531	54	585
Los Banos Dam and Reservoir	3,429	194	10	204
Recreation and fish and wildlife enhancement features	14,680	313	518	831
TOTAL, recreation and fish and wildlife enhancement alternative costs	40,707	1,646	818	2,464

Separable Costs

In project formulation and cost allocation studies, the separable cost of a particular purpose of a multipurpose facility is the estimated cost of accommodating that purpose in the planned construction and operation of the multipurpose facility. The separable cost of a particular purpose is the difference between the following two cost estimates: (a) the total cost of the multipurpose facility; and (b) the total estimated costs of a hypothetical facility planned to accommodate all purposes of the complete multipurpose facility except the particular purpose. The total separable costs of the multipurpose facility is the total of the separable costs for all purposes accommodated in the planned construction and operation of the facility.

Water Supply Separable Costs

The separable costs of water supply for California Aqueduct facilities from the Delta to Dos Amigos Pumping Plant are the differences in estimated costs of (a) the State's total share for the multipurpose facilities and (b) the estimated costs of these facilities hypothetically sized so as to provide for the same recreation and fish and wildlife enhancement benefits as the multipurpose facilities, but no water supply benefits.

These hypothetical facilities are estimated to include the previously described alternative single-purpose recreation and fish and wildlife enhancement facilities. The estimated costs of these hypothetical facilities, which exclude water supply as a project purpose, and the estimated separable costs of water supply for project facilities from the Delta to Dos Amigos Pumping Plant are shown in Table VIII.

TABLE VIII

WATER SUPPLY SEPARABLE COSTS (STATE SHARE)

(in thousands of dollars)

Item	First Costs	Equal Annual Equivalent Costs at 4.462% Interest: 50-Year Period 1968-2017		
		Capital	OMP&R	Total
Total multipurpose facilities	272,842	13,920	7,622	21,542
Less; Hypothetical facilities for recreation and fish and wlidlife enhancement:				
Alternative facilities for recreation and fish and wildlife enhancement	40,707	1,646	818	2,464
remainder: Water supply separable costs	232,135	12,274	6,804	19,078

Recreation and Fish and Wildlife Enhancement Separable Costs

The separable costs of recreation and fish and wildlife enhancement are equal to the total estimated costs of multipurpose facilities from the Delta to Dos Amigos Pumping Plant in excess of the estimated costs of hypothetical facilities sized only for water supply. Such hypothetical facilities are equivalent to the alternative single-purpose water supply facilities previously described, the costs of which are shown in Table VI. The estimated recreation and fish and wildlife enhancement separable costs for multipurpose facilities from the Delta to Dos Amigos Pumping Plant are shown in Table IX.

TABLE IX

RECREATION AND FISH AND WILDLIFE ENHANCEMENT
SEPARABLE COSTS (STATE SHARE)

(thousands of dollars)

Item	First Costs	Equal Annual Equivalent Costs at 4.462% Interest: 50-Year Period 1968-2017		
		Capital	OMP&R	Total
Total multipurpose facilities	272,842	13,920	7,622	21,542
less, Hypothetical facilities for water supply	254,289	13,566	7,004	20,570
remainder: Separable recreation and fish and wildlife enhancement costs	18,553	354	618	972

Footnotes

1) "Agreement Between the United States of America and the Department of Water Resources of the State of California for the Construction and Operation of the Joint-Use Facilities of the San Luis Unit", December 30, 1961.

2) Letter to Mr. William E. Warne, Director, Department of Water Resources from Mr. C. H. Kadie, Assistant Regional Director, Region 2, Bureau of Reclamation, November 17, 1965.

3) "Agreement Between the United States of America and the Department of Parks and Recreation of the State of California for the Construction and Operation of the Initial Recreation Facilities of the San Luis Unit", June 3, 1969.

4) For the project facilities from the Delta to Dos Amigos Pumping Plant, the associated water supply benefits are considerably greater than the estimated costs of the least expensive of any single-purpose alternative water supply source, which, in this case, is the project facilities hypothetically resized to accommodate water supply only. Since the justifiable costs of water supply are therefore governed by the single-purpose alternative costs, rather than by the benefits, an extremely precise estimate of such benefits is not justified.

5) See footnote 3.

COMMENTS
BY
THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT,
THE DEPARTMENT OF PARKS AND RECREATION,
AND THE DEPARTMENT OF FISH AND GAME.

State of California

The Resources Agency of Californ

Memorandum

To : Honorable Ronald B. Robie, Director
Department of Water Resources

Date : March 28, 1977

Subject: Cost Allocations to Recreation and Fish an Wildlife Enhancement, State Water Project

From : **Director of Navigation and Ocean Development**

In response to your request of March 16, 1977, and in accordance with Section 11912 of the California Water Code, we have reviewed the draft of Appendix D, "Costs of Recreation and Fish and Wildlife Enhancement", to the Department of Water Resources' Bulletin 132-77 and we have no comments.

MARTY MERCADO
Director

State of California

The Resources Agency of California

Memorandum

To : Honorable Ronald B. Robie, Director
Department of Water Resources

Date : APR 28 1977

Subject: Cost Allocations to Recreation, Fish and Wildlife Enhancement State Water Project

From : **Department of Parks and Recreation**

The California Department of Parks and Recreation has reviewed the draft of Appendix D, Bulletin 132-77 concerning costs for recreation, fish and wildlife. It is our understanding that you developed percentages for allocation of the Delta Water Facilities for purposes of illustrating the procedure only and that the purposes of repayment and cost allocation procedures will be developed within the next few years. We hope to have the opportunity of working with your Department in this area in the coming years. This Department has no other comments at this time.

Herbert Rhodes
Director

State of California The Resources Agen

Memorandum

To : Honorable Ronald B. Robie, Director
Department of Water Resources

Date: April 1, 1977

From : **Department of Fish and Game**

Subject: Water Project - State of California, Department of Water Resources - State Water Project - 1977 Cost Allocation to Recreation, Fish and Wildlife Enhancement

Pursuant to Water Code, Section 11912, as amended by California Statutes of 1966, Chapter 27, you requested our written comments on State Water Project joint costs allocated to recreation, fish and wildlife enhancement, as reported in the review draft of Appendix D to Bulletin No. 132-77.

Appendix D presents new costs allocated to recreation, fish and wildlife enhancement of $109,743. This amount resulted from basically a net land allocation of $120,000, a $261,000 increase in interest charges, and $271,000 reduction in charges due to a reallocation of various portions of the project.

The Department of Fish and Game supports that portion of this cost allocation which is within our purview to evaluate. We certainly appreciate the Department of Water Resources efforts in providing us with a preliminary draft to review early in the development stage of the new allocation. This does provide us a chance to clarify points of concern prior to submitting formal comments. We look forward to continuing cooperative efforts.

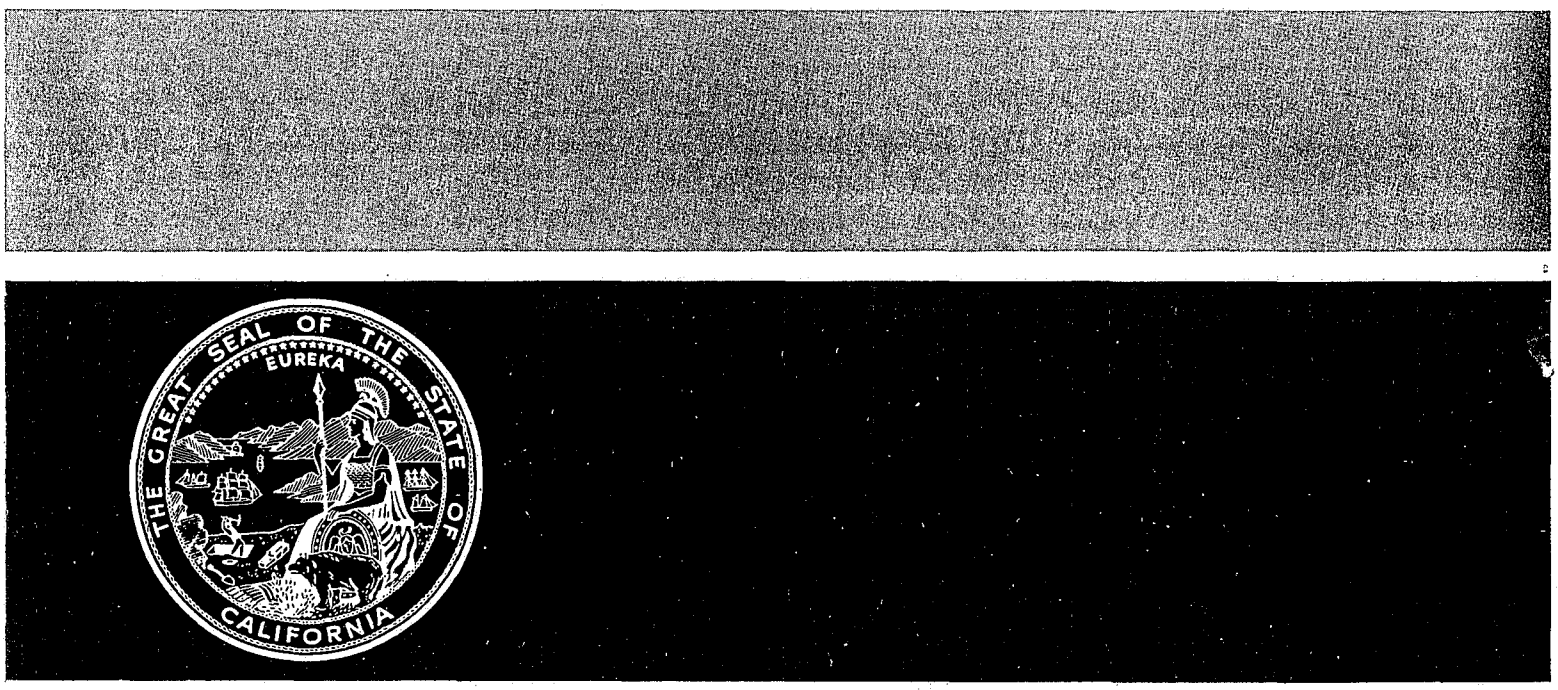
Director

CONVERSION FACTORS

English to Metric System of Measurement

Quantity	English Unit	Multiply by*	To get metric equivalent
Length	Inches (in)	25.4	millimetres (mm)
		.0254	metres (m)
	feet (ft)	.3048	metres (m)
	miles (mi)	1.6093	kilometres (km)
Area	square inches (in^2)	6.4516×10^4	square metres (m^2)
	square feet (ft^2)	.092903	square metres (m^2)
	acres	4046.9	square metres (m^2)
		.40469	hectares (ha)
		.40469	square hectometres (hm^2)
		0040469	square kilometres (km^2)
	square miles (mi^2)	2.590	square kilometres (km^2)
Volume	gallons. (gal)	3.7854	litres (l)
		.0037854	cubic metres (m^3)
	million gallons (10^6 gal)	3785.4	cubic metres (m^3)
	cubic feet (ft^3)	.028317	cubic metres (m^3)
	cubic yards (yd^3)	.76455	cubic metres (m^3)
	acre-feet (ac-ft)	1233.5	cubic metres (m^3)
		1.2335	cubic dekametres (dm^3)
		.0012335	cubic hectometres (hm^3)
		1.233×10^{-6}	cubic kilometres (km^3)
Volume Time (Flow)	cubic feet per sec (ft^3/s)	28.317	litres per second (l/s)
		.028317	cubic metres per sec (m^3/s)
	gallons per minute (gal/min)	.06309	litres per second (l/s)
		6.309×10^{-5}	cubic metres per sec (m^3/s)
	million gallons per day (mgd)	.043813	cubic metres per sec (m^3/s)
Water Usage	acre-feet per acre	.3048	cubic metres per square metre (m^3/m^2)
Mass	pounds (lb)	.45359	kilograms (kg)
	tons (short. 2,000 lb)	.90718	tonne (t)
		907.18	kilograms (kg)
Power	horsepower (hp)	0.7460	kilowatts (kW)
Pressure	pounds per square inch (psi)	6894.8	pascal (Pa)

* For greater accuracy, use conversion factors in "Metric Practice Guide" (American Society for Testing and Materials, E 380-72).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